



Great Chishill



Little Shelford

[Bayer CropScience Biodiversity Centres]



Bayer CropScience



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Summary



Both sites are managed with visible commitment to conservation and the environment.

Biodiversity – What does it mean?

Biological diversity, in short ‘Biodiversity’ is defined as the ‘variety of life on Earth’ and encompasses all living beings, including humans, plants, animals, ecosystems and not just rare or endangered species.

Bayer CropScience have Biodiversity Centres at Great Chishill and Little Shelford and both are managed with visible commitment to conservation and the environment, whilst achieving their primary role as sites for crop trials work.

With the increasing environmental challenges placed on farmers, Bayer CropScience is always looking for ways to successfully combine farming and biodiversity. Our Biodiversity Centres are a practical demonstration of that commitment.

There are several key habitats present on both sites. These include hedgerows, ponds, grass margins, trees, woodland, ditches and traditional orchards. All these habitats are actively managed for biodiversity. There are several key Biodiversity

Action Plan (BAP) Species present on both sites; these have been identified through extensive monitoring.

Species present include Bullfinch, Turtle Dove, Skylark, Corn Bunting, a range of rare arable plants including Corn Marigold and Night Flowering Catchfly, Bluebells, Cowslips, a range of farmland butterflies including Brimstone and Gatekeeper. The correct management regime is also in place to support a healthy population of beneficial insects.

This document sets out to record these habitats and species and give a more defined structure to future conservation planning on both sites. This approach will enable the Bayer CropScience Biodiversity Project to achieve its full potential.

What is a BAP Species?

BAP stands for Biodiversity Action Plan. These species are rare or endangered now in the UK and action plans have been put in place to highlight particular species’ nesting habits, food sources, etc. to try and encourage higher populations.

Introduction & Objectives

Sustainable agriculture is a key objective for Bayer CropScience.

Bayer CropScience are one of the world's leading crop science companies. With our expertise and experience in providing high-quality innovative solutions to the UK agricultural, garden and amenity markets, we are setting the standard in areas of product and environmental stewardship.

As an innovative and research-based company, we are committed to developing and marketing solutions for the safeguarding of crops and providing our customers efficient and tailor-made solutions and pioneering new product developments.

At Bayer CropScience, we are dedicated to the principles and practice of sustainable development and are determined to promote the health and wellbeing of people and the environment to the best of our ability. We are committed to open

communication that reflects what our customers, stakeholders and employees really are: our partners.

This document is based on a reporting partnership between FWAG and Bayer CropScience and gives an overview of the conservation work and monitoring carried out at both Centres, as part of our Biodiversity Project. This includes maps of environmental features, habitat and species information and a summary of the monitoring information compiled to date.

The overall aim of this document is to give a direction and framework for future work on each site. Both Centres cover some 20 hectares of land and support a wide range of species, habitats and crop trials. The differences in soil type, layout, history and landscape mean that whilst a common methodology can be used to promote conservation and biodiversity, each of the Centres are considered separately. Individual conservation plans have been drawn up for each site and will be updated annually, summarising the work carried out and monitoring results obtained.



Our Centres are a practical commitment to Sustainable Agriculture.



3.2 BIODIVERSITY SUMMARY

[KEY SPECIES]

Chishill

3.1 THE BIODIVERSITY CENTRE

This Centre covers some 20 hectares on a gently undulating clay plateau to the south west of Cambridge, on the Hertfordshire border. Whilst the surrounding agricultural landscape is very open, mature hedgerows bound the Centre with trees, giving the site an enclosed feel.

Formerly an orchard producing both apples and plums, much of the farm has been converted into combinable crops for trial plots, whilst retaining a diverse range of habitats, including:

Plum and apple orchards.

A number of small woodlands and ponds.

Trees and a pattern of old hedgerows.

A network of grass margins.

These non-cropped areas are actively managed to promote wildlife.



[KEY HABITATS]

- Hedgerows
- Ponds
- Grass Margins
- Trees
- Woodland
- Ditches
- Traditional Orchards
- Arable Farmland

MAMMAL

Pipistrelle Bat – there may also be other bats present.
Brown Hare – may use the hedge bottoms and grass margins.

BIRD

Yellowhammer – benefit from extensive hedgerow and margin management.
Bullfinch – benefit from extensive hedgerow and margin management and gain additional benefit from retention of the traditional orchard areas.
Turtle Dove – benefit from extensive hedgerow and margin management and would gain additional benefit from the use of cultivated arable margins.
Barn Owls – benefit from extensive margin management that should lead to increased field vole populations.
Song Thrush – benefit from extensive hedgerow and margin management and gain additional benefit from wooded areas.

AMPHIBIAN

Frogs, Toads and Newts – all these amphibians benefit from extensive management of ponds, ditches and field margins.

INVERTEBRATE

Bumble Bees – three main species of bumble bee are known to inhabit the Chishill Centre. All these species benefit from the addition of pollen and nectar mixes and the continued extensive management of grass margins.
Butterflies – the many species of butterfly present on the site benefit from a range of measures recommended including extensive margin management and the continued extensive management of hedgerows.
Dragonflies & Damselflies – benefit from the recently extended ponds and extensive ditch management.

PLANT

Bluebells – these plants thrive in the hedge bottoms and on the ditch banks adjacent to the pond field.
Cowslips – the plants are present in many of the ditch banks and field margins around the site. Varied management of these areas including annual mowing mean they continue to thrive.
Bee Orchids – these plants are known to be present in margins on this site. Good margin management mean any population can be encouraged.
Arable Plants – cultivated margins and continued monitoring should ensure these valuable populations survive.

Habitats

3.3.1 HEDGEROWS

Hedgerows are some of the most important habitats found on any farm and Chishill is no different; there is over 2km of hedgerow present on the site.

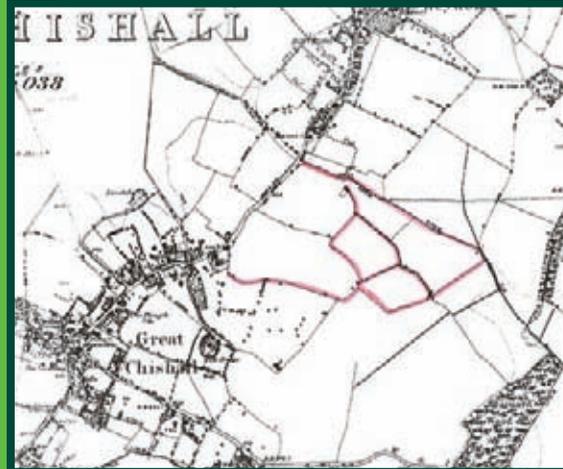
Well-managed hedges provide cover and shelter for birds, insects and smaller mammals, which benefit from the structure of the hedge itself, its foliage, fruits and flowers and the microclimate that it creates. Hedgerows can also act as corridors between isolated habitats, allowing the regular movement of mobile species or the more gradual migration and dispersal of others.

The hedgerows and field boundary features on the site are shown on the Site Map.

The map above is a copy of the 1st Edition OS Map covering the site, showing that many of the boundaries

are pre-enclosure and are of high historic value, in terms of landscape and wildlife.

In many cases hedges such as these are remnants of the original woodland cover, which were left as boundary markers during woodland clearance, a process known as 'assarting'. It is quite likely that many of the hedges on the site are at least two hundred and fifty years old and some may be even older.



In general, ancient hedges such as these will contain a wider range of shrub species apart from common Hawthorn. The hedgerows contain Hawthorn, Blackthorn, Ash and Oak. In addition to the range of species within the hedgerows, many also have remnant woodland flora at their base; species such as Bluebells and Stitchwort are present at Chishill and these species indicate that some of these hedgerows are ancient features of the landscape.

A further indication of the age of the perimeter hedges is demonstrated by the presence of several significant Ash pollards in the hedgerow on the south-eastern boundary of the land.

In addition to these old hedgerows, several boundaries have in the past, been planted with poplars as windbreaks, to protect the commercial orchards that existed on the site. These are being replaced with more traditional hedgerow species.

It is worth noting that all the hedgerows and field boundary features on the site are buffered from arable operations by a 6 metre grass strip.

The Biodiversity Centre at Chishill has been in a Countryside Stewardship Scheme since October 1997 and the aim was to see the perimeter hedge laid and restored. This work was completed in 2002.

The hedgerows on the site are currently managed in a sympathetic rotation where no hedge is cut more frequently than every other year.

Hedgerow Benefits

Many farmland birds use hedgerows and their associated habitats as either nesting sites or feeding grounds, these include Yellowhammer, Bullfinch and Turtle Dove;

Farmland Butterflies such as the Brimstone rely on Blackthorn as egg laying sites.

Pipistrelle Bats feed on insects along hedge lines and also use Ivy covered hedgerow trees as summer roosts.

Brown Hares use hedge bottoms for shelter and as foraging areas.

Barn Owls use well managed hedgerows as hunting corridors.

Well managed hedgerows provide habitat and food source benefits for many different species.

Margin Benefits

Well managed margins provide habitat and food source benefits for many different species; they will also provide a buffer for field boundary features, non-cropped land and arable production. It is important to have a range of different margins across the farm, to provide a variety of different habitats. This is achieved at Chishill by having a proactive approach to margin management.

Many farmland birds use margins and their associated habitats as either nesting sites or feeding grounds, these include Yellowhammer, Bullfinch and Turtle Dove;

Farmland Butterflies benefit greatly from the pollen and nectar sources that develop in the margins.

Many Butterflies such as Hedge Brown, Meadow Brown and Ringlet, rely on the finer grasses in margins for both egg laying and caterpillar development.

Bumble Bees use flowering plants found in margins as food sources; they also use the tussocky overgrown areas of margins for over-wintering and nest sites.

Barn Owls use well managed tussocky margins as hunting corridors.

3.3.2 MARGINS

Margins form very important habitats for wildlife in their own right as well as providing important links between habitats.

There is an excellent network of well established field margins at Chishill extending to some 5km.

The field margins at Chishill, form essential areas between the cropped land and the features such as hedgerows, woodland, verges, watercourses and ponds, which are not farmed. Not only do they provide a buffer zone from agricultural operations but if correctly managed can reduce the spread of weeds. This policy protects field boundary features and reduces the need for spraying hedgerow bottoms.

The margins have primarily been established to provide access to the various trial plots across the site but at the same time, they have provided

significant conservation benefit. All the margins have a well-established grass sward which contain Self Heal, Greater Plantain, Creeping Cinquefoil and Cowslip; Bluebell and Stitchwort are also found on the edge of these margins against the hedge bottoms.

The margins across the site are all managed in the same way. Regular

mowing is carried out over the summer months on a 2 metre strip to ease access to the trial sites. This strip is mown approximately 1 metre in from the cropped edge leaving an average 3 metre buffer from the field boundary. This 3 metre buffer is currently cut on an ad hoc basis with most margins cut every two years.



3.3.3 WOODLANDS AND TREES

Woodlands

Hedgerow and field trees are a particularly important landscape feature and will provide important habitat for a range of birds, bats and specialist insects such as beetles and spiders.

There are three blocks of woodland on the Chishill site; they are shown on the Site Map in Section 5. This does not include any of the “old” commercial orchards as these are dealt with separately.

These three blocks of woodland were all planted as part of a Woodland Grant Scheme in the 1994/95 planting season. The main canopy planting is dominated by Beech and Ash interspersed with Field Maple and Wild Cherry. The canopy and shrub layer has been planted with Hazel, Crab Apple,

Hawthorn and Wayfaring Tree. A good establishment has been achieved since planting; ongoing management needs are limited to maintenance of rides and areas of open ground.

The woodland structure and management plan is reviewed every two years to establish the need for thinning and possible coppicing.

Established areas of bramble are beneficial for nesting sites, nectar and food sources.

Trees

There is a range of hedgerow trees across the site. The dominant trees are Ash and Oak and these are found in almost all the hedge lines.

On the south eastern boundary of the site there is a good selection of very old Ash pollards that reinforce the assumption that many of the boundary features on the farm are ancient landscape features. These trees are surrounded by grass margins.

There are no individual true in field trees on the site. There are however, a number of important trees along the banks of the wet ditch forming the southern boundary of Pond Field. The Ash and Oak trees form an important historic and landscape feature on the farm and will benefit greatly from the removal of poplars from this boundary. The presence of Dog’s Mercury, Arum Lily and Bluebell indicate that as with the hedgerows, these trees are on the site of old semi-natural woodland.



Woodland Grant Schemes can form part of the Entry Level Scheme (ELS) payments.

3.3.4 PONDS

Ponds provide valuable habitat for a wide range of aquatic life, emergent and marginal plants.

There is no “ideal pond” for wildlife and conservation although it should be noted that 60% of wildlife associated with any pond relies on the shallows and mudflats around the edges.

At the Chishill Centre, there are two separate ponds, shown on the site map.

Water is an important component for conservation.



Pond One

Pond One has been present on the site for some considerable time.

The pond is believed to be fed by a combination of a spring and field drainage. The original pond was extended in 2004 and a programme of pollarding willows has also been started.

A newt survey was carried out in 2004 recording smooth newts on site.

There is evidence of green algae being present in the pond; this is usually an indication of increased levels of nutrients in the water; it can also be present in recently excavated and exposed ponds where the introduction of more light can encourage the growth of the algae. The pond is well buffered from the arable operations by 6 metre grass margins.

The marginal vegetation around the pond is limited to Sweet Reed Grass, present around the dipping platform on the northern banks. The southern banks were exposed as the pond was extended and have yet to be colonised by marginal or emergent vegetation.

Pond Two

Pond Two was excavated in the winter of 2004. It is an inline pond formed by excavating the existing ditch as it leaves the site in the south western corner of the Pond Field. This small pond is developing into a valuable habitat with both Rush and Sedge establishing themselves as marginal vegetation on all banks.

Pond Benefits

Well managed farmland ponds are very valuable features when considering landscape, history and wildlife benefits. At Chishill;

Farm ponds are important habitats for the survival of Dragonflies and Damselflies. Eggs are laid into floating plant material and marginal vegetation. Larvae are aquatic until they emerge as adults.

Frogs, Toads and Newts all rely on ponds for breeding. There are areas of rough grass and scrub close to the pond where they can feed.

Many farmland birds such as Reed Bunting and Bats feed on the insects that are associated with ponds and their surrounding habitats.



3.3.5 DITCHES

Drainage ditches are important features on a farm for biodiversity reliant on damp environments.

There are three main ditches on the Chishill Site and these margins provide a buffer to protect the watercourse by reducing the sediment deposition as the plough line is moved from the immediate bank edge.

Ditch Benefits

The ditches at Chishill provide added value to the network of wildlife corridors across the Site.

They provide excellent feeding sites for Bats.

The banks of the ditches support a number of interesting plants, including; Dogs Mercury, Bluebell and Cowslip.

Ditches are important habitats for the survival of Dragonflies and Damselflies.



3.3.6 ARABLE

Arable land is itself an important habitat. Numerous specialised plants are totally reliant on cultivation for their life cycle.

A number of declining farmland birds rely almost entirely on the management of arable land for survival.

The variety of cropping and cultivation that take place on the site mean there is always a diversity of habitats and food sources available to both farmland birds and beneficial insects.

The cropping on the site is dictated by business requirements. Opportunities to increase the overall diversity by effectively using arable areas not required for production in any one year have been successfully adopted.

Separate areas of wild seed mix and Phacelia were established in a number of fields.

Arable farmland can support a range of specialised plants that rely on annual cultivations for their survival. Bayer CropScience participates in the South Cambridge Arable Weed Survey. The results of this survey show that Loose Silky Bent, Round Leaved and Sharp Leaved Fluellen were present on the site.

Limited areas of arable land can be cultivated but left unsown to try and encourage germination.



3.3.7 ORCHARDS

The mature Marjorie plum orchard has been recognised as important for the biodiversity, landscape and history of this area.

The apple orchards remain an important part of the commercial function of the site.

The two areas of traditional orchard are both very important to the overall diversity of the site and remain the subject of major invertebrate surveys.

There is a mix of both traditional and modern orchards at Chishill.

Tracks and glades have been established in the Marjorie Plum Orchard and it is important to ensure that this resource is managed to its maximum potential.

In addition to this there is a small apple orchard at the northern end of Pond Field. Both orchards provide an excellent “over-grown” habitat that is directly linked to the pond. The importance to the overall biodiversity of the site should not be over-looked. The unmanaged nature of these areas means they provide excellent over-wintering and feeding habitat for amphibians that use the pond as a summer breeding habitat.

Cambridgeshire is a county of commercial orchards and the growth of orchards in Cambridgeshire was encouraged by the jam making industry. Since the 1930’s, more than 50% of the orchards present in Cambridgeshire have been lost and these are still on the decline.

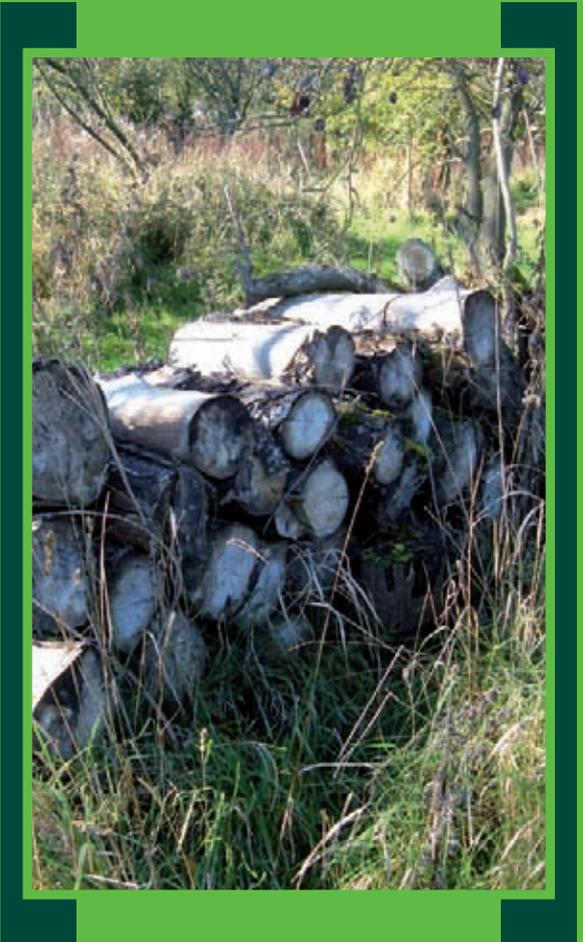
Traditional orchards and their importance to wildlife have also been included in the Habitat Action Plan for Cambridgeshire. Some of its objectives are;

To halt the loss of all traditional orchards through neglect by encouraging appropriate management.

Establish new orchards, planted in a traditional manner, with traditional varieties.

Increase knowledge and appreciation of the value of old orchards, both in their contribution to biodiversity and their landscape and cultural value.

The unmanaged nature of these areas means they will provide excellent over-wintering and feeding habitat for amphibians that use the pond as a summer breeding habitat.



3.4 SPECIES

The Biodiversity Centre at Chishill provides ideal habitat for many different species.

A varied programme of monitoring and survey work has been ongoing across the site since 1993. The species highlighted in this section are all known to be present on the site at different times of the year.

3.4.1 Bullfinch



The Bullfinch is a year round resident in the UK and it is a UK Biodiversity Action Plan (BAP) Species.

The favoured habitats of the Bullfinch are the edges of broad leaved woodland, areas of scrub, large hedgerows and orchard. They prefer to live in an area with a mixed farming landscape. A combination of the old orchard areas, extensively managed hedgerows and well established grass margins mean that the Chishill Centre provides an ideal habitat for this rare bird.

3.4.2 Yellowhammer



The Yellowhammer is a year round resident in the UK and is also an RSPB Red List species.

The Yellowhammer is recognised as a bird of mixed farmland habitat. It is important that it has access to dense hedgerows, field margins with long grass, scrub or edges of woodland for breeding success. The Chishill Centre therefore, provides ideal nesting habitat for Yellowhammers.

3.4.3 Turtle Dove



The Turtle Dove is a summer visitor to the UK, arriving in late April and returning to the Sahel region of Africa at the end of August. It is a UK BAP Species and is on the RSPB Red List.

The favoured nesting habitats for Turtle Doves are tall hedgerows and areas of scrub over 4 metres tall. They prefer thorny species such as Hawthorn. They generally prefer feeding on weedy areas especially where the vegetation is short and sparse. The hedgerows, along with the well established grass margins, limited areas of fallow land and stubbles provide the ideal habitat for visiting Turtle Doves.

3.4.4 Farmland Butterflies



Brimstone

Farmland butterflies have many different requirements for both food and habitat. Such as sheltered hedges and hedge bottoms, permanent pastures and wildflower meadows. Butterflies need areas that will be undisturbed while the eggs hatch and caterpillars develop. Established hedges are important as butterflies' associate with specific locations. The Chishill site with its network of grass margins, hedgerows and orchard areas play host to a varied butterfly population, including; Brimstone, Common Blue, Small Heath and Gatekeeper.

3.4.5 Bumble Bees



There are a large number of species of Bumble Bee and they rely heavily on extensive management of uncropped areas of farmland. A wide range of habitats are used by different species. All require somewhere to form nests (areas of grass with tussocks, dead wood piles and underground mammal nests) and areas of flowering plants for food. Several species including; *Bombus terrestris* and *Bombus lapidarius*, as with many of the other species on the site, benefit directly from areas sown with Phacelia and pollen and nectar mixes.

3.4.6 Rare Arable Plants



Loose Silky Bent

Chishill takes part in the South Cambridge Arable Weed Survey. The results of a recent survey show that Loose Silky Bent, Round Leaved and Sharp Leaved Fluellen were present on the site. Environmental management ensures plants such as these thrive at Chishill.



4.2 BIODIVERSITY SUMMARY

Shelford

4.1 THE BIODIVERSITY CENTRE

This Centre, to the south of Cambridge, covers some 20 hectares of land that is essentially one field divided into separate trial blocks by a network of tracks, margins and beetle banks.

Mature hedgerows surround the site on three sides with a belt of deciduous woodland forming the northern boundary.

The open nature of the site is beneficial to many target conservation species, including the Skylark. The nature of the soil, sandy loam over chalk, means both spring and winter crop trials can be supported, adding to the overall diversity of the site.

There are several key habitats on the site, these include:

Areas of woodland and trees.

A pond that is complimented by an area of native grasses and wildflowers.

Well managed perimeter hedgerows.

An excellent network of grass margins, tracks and beetle banks.

These non-cropped areas are actively managed to promote wildlife without detriment to the overall purpose of the site as a field trial station.

[KEY HABITATS]

- Hedgerows
- Ponds
- Grass Margins
- Beetle Banks
- Trees
- New Woodland
- Arable Farmland



[KEY SPECIES]

MAMMAL

Pipistrelle Bat – there may also be other bats present.

BIRD

Skylark – benefit from the presence of the combination of spring cropping, fallow land and beetle banks.

Corn Bunting – benefit from the presence of the combination of spring cropping, fallow land and beetle banks.

Yellowhammer – benefit from extensive hedgerow and margin management.

Bullfinch – benefit from extensive hedgerow and margin management and gain additional benefit from the adjacent band of deciduous woodland.

AMPHIBIAN

Frogs, Toads and Newts – all these amphibians benefit from extensive management of the pond and field margins.

INVERTEBRATE

Bumble Bees – Bumble Bees are known to inhabit the Shelford site. All species benefit from the addition of pollen and nectar mixes and the grass margins.

Butterflies – the many species of butterfly present on the site benefit from extensive management of margin and hedgerows.

Dragonflies & Damselflies – benefit from the newly dug pond.

PLANT

Cowslips – the plants are present in the area of grassland surrounding the pond and the field margins around the site.

Varied management of these areas including annual mowing mean they continue to thrive.

Arable Plants – cultivated margins, fallow land and continued monitoring ensure these valuable populations survive.

Habitats

4.3.1 HEDGEROWS

The perimeter hedgerow at Shelford is an important feature of the site.

Hedgerows are present on three of the four boundaries on the farm. The northern boundary of the farm is formed by a belt of deciduous woodland that dominates a mature, managed Hawthorn hedge.

Hedgerow One

This hedgerow was planted in the autumn of 2003 as part of a landscape and biodiversity grant given from South Cambridgeshire District Council and forms the perimeter boundary along the access track to the farm. This hedge has established well with a polythene mulch providing good weed control. The planting density is good and a range of species including Hawthorn, Hazel, Dogwood and Field Maple are present.

Occasional trees have been placed along the full length of the hedgerow, especially oak.

Hedgerow One



Hedgerow Two



Hedgerow Two

Pictured above, forms the boundary along the roadside. The hedge has a good overall structure.

Hedgerow Three

Hawthorn dominated and typical of enclosure hedges found on many arable farms, the structure is generally good. There are several mature hedgerow trees at the north eastern end of this hedge.

It is worth noting that all the hedgerows and field boundary features on the site are buffered from arable operations by a 6-metre grass strip.

The hedgerows on the site are managed such that no hedge is cut more than every other year.

Hedgerow Three



4.3.2 MARGINS, TRACKS AND BEETLE BANKS

There is an excellent network of well established field margins and beetle banks at the Shelford site extending to some 3km.

At Shelford, the margins provide access to the various trial plots across the site but at the same time they have provided significant conservation benefit. All the margins have a well-established grass sward that contain a range of plants, including; Plantains, Creeping Cinquefoil and Cowslip.

The margins across the site are all managed in the same way. Regular mowing throughout the summer months on a 2 metre strip allows access to the trial sites. It is mown approximately 1 metre in from the cropped edge leaving an average 3 metre buffer from the field boundary. This 3 metre buffer is currently cut on an ad hoc basis with most margins cut every two years.

Access Tracks

There are three access tracks running from north to south across the site. These tracks have been established by sowing a good grass sward consisting of fine leaved grasses such as Fescues and Meadow Grasses.

These tracks are all managed in the same way; the central portion is mown three to four times during the summer with the crop side one metre strip being allowed to grow on throughout the summer. Due to the amount of access required, patches of bare ground have developed and act as basking areas for many invertebrates on the site.



Beetle Banks

A Beetle bank is generally recognised as a 2 metre wide ridge sown with tussocky grasses and used to divide large fields.

At Shelford, there are four separate beetle banks running east to west across the trial plots and connecting the access tracks described previously. These features have been enhanced by the addition of a 2 metre wide strip of pollen and nectar mix, dominated by Clover, to the south of each raised bank and a 2 metre wide strip of fine leaved grasses to the north of each raised bank.

Beetle Bank Benefits

The central section of these Beetle Banks provide excellent habitat for ground nesting birds, including; Skylark, small mammals and beneficial insects.

The provision of a strip of pollen and nectar mix to the south of this strip of tussocky grass provides an excellent food source for nectar feeding insects including Bumble Bees and butterflies. They also use the tussocky grass as a nesting or over-wintering habitat.

The provision of a fine leaved grass strip adds diversity to an already rich habitat.

4.3.3 WOODLANDS, SPINNEYS AND TREES

Woodland

This woodland has been established with the South Cambridgeshire District Council Biodiversity Grant in 2003.

There is one small area of woodland situated at the south western corner of the site.

The species planted include: Oak, Field Maple, Hawthorn, Blackthorn, Wild Privet and Dogwood.

There are several areas of mature woodland on the land immediately adjacent to the site and although they are not under the management of the site, their presence adds to the overall diversity.

Spinneys

There are two small spinneys on the site, which add to the landscape value of the site and act as shelter and roosting habitats to a variety of farmland birds and small mammals.

Trees

Hedgerow and field trees are a particularly important landscape feature and provide important habitat for birds, bats and insects, such as beetles and spiders.

In the Cambridgeshire County Council 'State of the Environment Report 1998', Cambridgeshire was listed as one of the least wooded areas in the UK with only 2.1% woodland cover. This highlights that wooded habitats have a vital role in the county not only as important wildlife habitats but also as landscape features.

Hedgerow Trees

There are a range of hedgerow trees across the site. Hedgerow One has had several trees planted within the hedge and these add significant value to the hedge as it matures.

Several trees have been planted on the verge adjacent to Hedgerow Two and Hedgerow Three contains several maturing Oak trees.

There are several examples of Ivy on trees in the band of deciduous

woodland on the northern boundary. Ivy on trees is a very valuable habitat as it provides precious cover all year round and flowers and berries at important times of year. It flowers in the autumn and carries developing fruit during the winter. In March and April, the berries are ripe and because of their high fat content are amongst the most nutritious of any wild fruit in the UK. In the autumn, the last foraging Bumble Bees, wasps and a host of fly species are attracted to the abundant pollen and nectar of the Ivy flowers.



Hedgerow and field trees are a particularly important landscape feature and provide important habitat for birds, bats and insects, such as beetles and spiders.



4.3.4 THE POND

The triangular area at the north eastern side of the site is a valuable wildlife and conservation area that acts as a bridge between the deciduous woodland and farmed land.

The pond was established in the spring of 2006. The excavation work was carefully carried out ensuring there is a varied profile to the shore line with bays created along the banks. The shallows to the north east of the pond encourage an area of warmer water for access to and from the water for amphibians.

The water in the pond has been allowed to find its natural level. The soil from the excavation was used around the immediate area to create a miniature rolling landscape.

This was planted with a selection of native trees and a grass based pollen and nectar mix has been sown to provide ground cover.

Throughout the last century, agricultural ponds have been in decline and in Cambridgeshire alone, the number has decreased by over 10%.

There has been stronger awareness in recent years of the environmental impact of ponds at different progressive stages. The biodiversity value of a pond can be increased by its direct surroundings, highlighting the need for management. Hedgerows, scrub and rough grassland maintained adjacent to a pond, act as gateways and corridors for amphibians to travel.



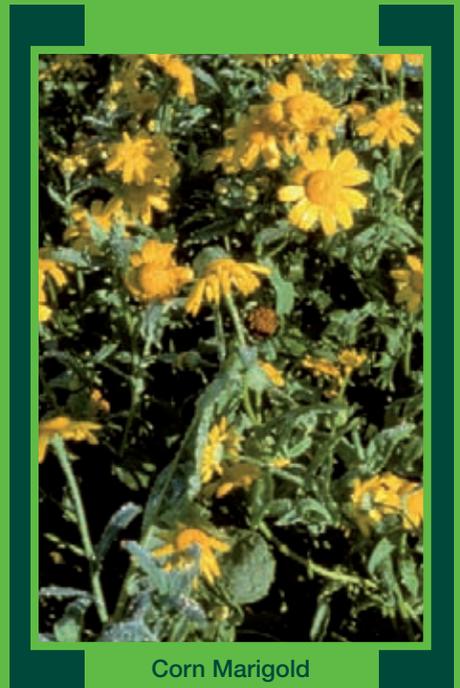
4.3.5 ARABLE LAND

Arable land is itself an important habitat. Opportunities to increase the overall diversity by effectively using arable areas not required for production in any one year, have been successfully adopted.

In 2006, a separate area of Phacelia was established in uncropped areas.

The Shelford site also participates in the South Cambridgeshire Arable Weed Survey. The results of a recent survey showed that several rare plants were present. These included Corn Marigold, Round Leaved Fluellen, Night Flowering Catchfly, Rough Poppy and Venus Looking Glass. These plants all favour spring

germination. Annual surveys for arable plants are undertaken and limited areas of arable land are cultivated and then left unsown to try and encourage germination.



Corn Marigold

4.4 SPECIES

The Biodiversity Centre at Shelford also provides an ideal habitat for many different species. A variety of monitoring and survey work has been ongoing since 1993.

4.4.1 Skylark



The Skylark is the definitive bird of open farmland, preferring larger arable and grassland fields. The openess and short vegetation allows sighting of potential predators. The open nature of the Shelford site combined with the variation in cropping employed means it is an ideal site for Skylarks to nest. A combination of traditional grass beetle banks alongside strips of pollen and nectar mix provide the ideal nesting habitat and an excellent source of insects for feeding the chicks in the first few days of life. The Skylark is a national BAP species and is also on the RSPB Red List.

4.4.2 Corn Bunting



The Corn Bunting is a national BAP Species and is also on the RSPB Red List. It is a bird that prefers open farmland (like Shelford) or mixed farming systems. They nest on the ground in arable fields, set-aside land and unimproved pastures and will also nest at the base of hedges and bramble patches. Adults feed primarily on seeds and are particularly fond of cereal grains. Chicks almost entirely feed on invertebrates for their first few weeks of life. Breeding success relates directly to availability of insect food.

4.4.3 Beneficial Insects



Ladybird

The presence of species such as Ground Beetles, Hunting Spiders, Ladybirds, Lacewings, Parasitic

Wasps and species of Hover Fly is an indication of well managed "natural" habitats across a farm. These predatory insects will spread out from the uncropped areas on a farm and can help control crop pests. The extensive management of hedgerows and field margins mean there are good populations of beneficial insects present at Shelford.



Lacewing



Ants

The Future

The Biodiversity Centres at both Chishill and Shelford have a wide variety of important environmental and conservation features.

FWAG Conservation Plans for both Centres are in place, the aim being to build on the work already undertaken and the current good management practices in place and establish a targeted rolling work programme. These flexible plans focus on the required management and give guidance on a structured programme of monitoring, which adds to existing information and tailors the management of habitats on the farm to suit the different species recorded.

Such monitoring includes;

Farmland Bird Survey; a continuation of existing work to focus on key species previously identified.

Beneficial Insect Survey; establish a baseline survey of the beneficial insects present at both Centres.

Arable Flora Survey; to build on the information previously established by the South Cambridgeshire Arable Weed Survey.

Butterflies and Bumble Bees; continue with the existing monitoring.

Bat Survey; both sites offer excellent opportunities for bats. There is an ongoing programme of monitoring.

Small mammals; There is an ongoing programme, where those species present, are monitored biannually.

Bayer CropScience will continue to manage their Biodiversity Centres with visible commitment to conservation and the environment, whilst achieving their primary role as working farms.

We will continue to implement measures to enhance the wildlife alongside conventional farming, demonstrating that the two can work hand in hand. With the increasing environmental challenges placed on farmers, Bayer CropScience is committed to researching ways to successfully combine farming and conservation education.

With this in mind, we have been working with FACE (Farming and Countryside Education) on many different projects and have sponsored a distance learning version of CEVAS (Countryside Educational Visits Accreditation Scheme), which is a comprehensive course that allows farmers to achieve an official qualification in hosting educational visits on their farms and helps reassure teachers and parents that their children will receive a worthwhile experience in a safe environment.

With these tools in place, our aim is to share our work and experiences and show how implementing these measures can actually have a positive economic and environmental effect.

Our Biodiversity Centres provide a platform to discuss and demonstrate conservation farming to growers, distributors, consultants and agronomists and may be a way of educating the wider community and local schools of the changes that have taken place in modern agriculture. They are a practical demonstration of our commitment to Sustainable Agriculture.

Farm Maps

Great Chishill



Little Shelford



[Bayer CropScience Biodiversity Centres]

Should you wish to visit the Bayer CropScience Biodiversity Centres, please contact: **01223 226500** or email us at: **info@bayercropscience.com**

If you would like any more information on the FWAG Landmanager programme, please visit the FWAG website and contact your local office.
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